

Final Report

Auckland City's Economic Future

Prepared for

Auckland City

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This paper is a think-piece that discusses issues the Economic Development group needs to consider as they develop an economic development strategy for Auckland City.

This document was written by Covec for Auckland City's Economic Development group. Content was based on discussion with the group.

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Executive Summary

The Auckland City Council, like other local governments in New Zealand, is charged with promoting the social, economic, environmental, and cultural well-being of communities, in the present and for the future. This report explores the economic development of Auckland, and its place within the broader objectives of the council.

Why is Economic Development Important?

The term “economic development” does not have a universal definition. We use economic growth as a proxy for economic development in this report. Economic growth can be measured in terms of growth in Gross Domestic Product (GDP). Empirical evidence suggests that this measure of economic growth contributes to well-being in the broadest sense of the term.

An increase in the economic value a population generates will generally increase the range of options available to that population, allowing it to achieve broader goals more readily. Growth in aggregate income per capita allows people to satisfy their needs more easily and therefore to devote more resources to activities that are desirable for well-being even if they are not strictly necessary. Greater attention can be given to environmental, social and cultural activities than would otherwise be the case.

Not all growth is beneficial however, so several caveats are required. First, the economic well-being of a population depends on the pattern of ownership and distribution of economic value in addition to the amount of value created. Second, unless the cost of ‘spill-over’ effects such as pollution and congestion are priced, market forces will tend to mis-allocate resources and the costs of economic growth will increase. Third, the process of growth may impose hardship and financial costs on some members of society, particularly during transition phases. Local government can assist in identifying and sometimes also in mitigating these costs of growth.

Growth in Theory and Practice

Economic growth theory attempts to explain why economies grow over time and what determines the rate at which growth occurs. Two basic growth channels are: the use of larger volumes of inputs, such as capital and labour; and increasing the productivity of inputs. Growth is most likely to occur through increases in savings and through technological innovation. Policies that encourage (or at least do not discourage) savings, and create an environment in which technological innovation can occur are most likely to promote economic growth.

At a city level, economic development depends heavily on the ability of firms to locate suitable labour and vice-versa. Cities experience rapid economic growth when they host industries and sectors that are growing rapidly, and do so in ways that other locations cannot.

There are many possible sources of this comparative advantage, including:

- Proximity to physical and human resources required by high growth sectors (e.g. harbours connected by land transport infrastructure to productive hinterlands, high quality educational facilities);
- The presence of one or more outstandingly successful and innovative firms (e.g. Seattle, which is home to Microsoft and Boeing); and
- Network effects arising from large pools of innovative smaller firms and individuals (e.g. the IT outsourcing sector in Bangalore).

Governments (including local governments) have a legitimate and useful role in promoting growth, even to the extent of targeting particular industries for direct assistance. However the nature of the assistance matters a great deal. It is most likely to be beneficial if it provides information or other services that are likely to bring forth new investment and would not be provided by the private sector. It is likely to be harmful if it involves direct and non-contested assistance to particular firms, or involves some form of protection from competition.

It has been convincingly shown that productivity is higher in larger cities, that co-location in cities directly fosters innovation, and that larger cities contribute more than proportionately to national output. Diversity is also valuable: there are fundamental economic benefits that can only arise from the diversity supported in a city.

The Context for Growth

Many people believe that we are entering a new economic age, known as the information economy or the knowledge economy, which will transform the world as significantly as the industrial revolution did. The global economy is advancing in the direction of knowledge-intensive production, where the creation of new knowledge is highly valued. This trend is recognised by central government in New Zealand, which has embarked on a range of programmes designed to promote innovation and, through innovation, economic growth.

Total population growth over the period 2001-2026 is expected to be 46% for the Auckland region and 44% for Auckland City. There are two important trends within the aggregate data. The first is that the age structure of Auckland city is expected to change quite significantly over the forecast period. The second is that the vast majority of the population growth is expected to be Asian (121% over the period 2001-2016) followed by Polynesian (23%), Maori (16%) and European (1%).

Auckland City is quite strongly specialised in the provision of professional services. The city has grown at a similar rate to the rest of New Zealand over the past two decades. However, Auckland's growth rate has fallen below the growth rate for the rest of New Zealand in the past two years which is of some concern. In aggregate the Auckland economy has grown by around 64% in real terms (2.8% per annum) since 1987. This places Auckland seventh out of fourteen regions in terms of growth. Of greater concern, Auckland has experienced low per capita economic growth relative to

the rest of New Zealand. Aggregate growth in the Auckland economy has therefore been driven by population growth rather than productivity growth.

We investigated the empirical relationships between growth in Auckland and growth in the rest of New Zealand. Our analysis suggested that growth in the rest of New Zealand tends to lead growth in Auckland, but that the reverse is not true. This modelling is consistent with the hypothesis that Auckland adds value to outputs from other parts of New Zealand rather than initiating national economic growth.

We also surveyed other aspects of Auckland's current situation and formed the following views.

- Education and training policies need to reflect the needs of an innovative Auckland. This is particularly important in light of the predicted aging of Auckland's population.
- The ability of the city and the region to maintain a road construction programme will be a key determinant in Auckland's desirability as a place to reside and/or do business.
- Auckland City might usefully consider a role in promoting its own energy security, either through demand management or encouraging innovative locally distributed supply options, or both.
- We are less concerned about the scarcity of business land in Auckland. This need not constrain growth provided Auckland City retains and exercises flexibility in considering rezoning applications.

Future Scenarios

There is evidence of a need for major initiatives and expenditures on electricity, transport, education and the waterfront are required to set the region onto a new growth path. To provide some context for future policy development in these and related areas, we considered three specific scenarios, each of which could be part of a 'virtuous cycle' of economic development for Auckland. These are not mutually exclusive: the future may well involve components of each of the following.

- **Technology and innovation:** The co-location of many firms of varying sizes, all working on the commercialisation of new products and services, and the expansion of markets for these new outputs will characterise Auckland in this scenario.
- **Professional services:** Auckland breaks the geographic link between the provision and consumption of professional services with service entrepreneurs in Auckland reorienting some of their effort towards export activity. Key enablers of this trend are high-quality and reasonably priced broadband access, an efficient airline service, and the location in Auckland of first rate service professionals.
- **Creative:** The development of a strong creative culture in Auckland has attracted a wide range of creative people to the city and stimulated growth in a number of industries including advertising, architecture, crafts, design,

designer fashion, film and video, interactive leisure software, music, the performing arts, publishing, software and computer games, television and radio.

The key feature of all three scenarios is that knowledge economy entrepreneurs and workers find Auckland an attractive place to locate because doing so gives them ready access to the most critical resource of the future economy: talented and innovative people. The larger the pool of such people in Auckland, the more attractive it will be for entrepreneurs and workers to locate and grow here. The challenge for Auckland is to attract and retain innovative businesses. There are many other places that have the educated workforce and other resources required by innovative business.

Considerations for Council

First, do no harm. Governments should only intervene directly when private agents trading through markets are unlikely to produce socially desired outcomes *and* there is a specific intervention that is likely to improve matters. This is a strong hurdle for direct intervention.

Address physical needs. There is a recognised and positive relationship between infrastructure and growth, and a realisation that Auckland's current infrastructure, particularly for transport, is a constraint to growth. The waterfront area, which is currently dominated by Ports of Auckland, also has the potential to be much better connected with the city. It is important that decisions over the port are based on the best possible analysis of all alternative uses of the land.

Allow land markets to work. The Regional Business Land Strategy led by Auckland Regional Council addresses the perceived problem of running out of business land. We do not share these concerns. The land market is a remarkably efficient way of signalling land scarcity and allocating land to the highest value uses.

Exploit mutual interests. In many respects the economic development of Auckland City is complementary to the development of its neighbouring cities and districts. While there will always be some margins of competition between the local governments in the region, this should not obscure the co-dependence that all councils have on the development of the region.

Avoid subsidies. There are two potentially complementary ways for local government to advance economic development: promoting Auckland as an attractive place to live and to work; and direct support of individual industries or sectors. In our view it is much easier to make a case for the former.

Develop knowledge. There are a number of areas in which additional research could improve the understanding of current economic development issues in Auckland. They include analysis of the labour market in Auckland and its expected evolution; developing a better understanding of our productivity; and analysis of the extent to which Auckland does and does not compete with major Australian cities.

1. Why is Economic Development Important?

1.1. Chapter Summary

- Local governments in New Zealand are charged with promoting the social, economic, environmental, and cultural well-being of communities, in the present and for the future.
- This report focuses on the economic development of Auckland.
- The term “economic development” does not have a universal definition. To overcome the definitional problems associated with economic development we use economic growth as a proxy for economic development in this report. Economic growth is measured in terms of growth in Gross Domestic Product (GDP).
- The idea that GDP growth is desirable derives fundamentally from the concept of gains from trade. The phrase ‘gains from trade’ refers to the gain in welfare (or well-being) obtained by the parties to an exchange of goods and services.
- Growth can occur in a number of ways, but in the long-term market forces will ensure that there is a balance or ‘equilibrium’ between supply and demand. Growth can be led initially by demand or supply, or by both at the same time.
- Innovation that causes economic growth also generally displaces resources from their present uses. This can be painful and costly for the owners of those resources, particularly in the case of workers whose jobs disappear. However, such displacement generates unambiguous benefit at the national level when similar levels of output value can be obtained using fewer resources.
- The benefits of economic growth are readily summarised - an increase in the economic value a population generates will generally increase the range of options available to that population. However, this is not always the case and it should be remembered that it is the ownership and distribution of the value added that is critical to the economic well-being of a population.
- There is a body of empirical evidence that suggests that economic growth contributes to well-being in the broadest sense of the term. Economic wellbeing is ultimately derived from the consumption of goods and services. Real GDP measures the total amount of goods and services that are produced and consumed within our economy, so higher real GDP should correspond to higher welfare, broadly speaking.
- There may be welfare costs associated with economic growth, although this will ultimately depend on the source of the growth.
- Not all resources in an economy are priced, and some are not priced appropriately. In such cases benefits or costs “spill-over” from commercial transactions to other parties. These costs or benefits are called “externalities”.
- Externalities are highly relevant to economic development. Economists generally advocate correcting such problems by “internalising” these effects, for example through a system of taxes or subsidies. Local and central government agencies should have a role in identifying and rectifying externalities.

- Local and central government agencies should also be active in the provision of goods and services that are impossible or very difficult to provide commercially. Such goods and services are generally referred to as public goods.
- Economic growth can directly improve the economic well-being of a population and can also indirectly facilitate non-economic well-beings. Public policy influences the legal, regulatory and ownership structure of an economy, and can do so in ways that helps translate economic growth into economic well-being.
- Economic growth has the potential to increase the well-being of a community in the broadest sense of the term. Growth in aggregate income per capita allows people to satisfy their needs more easily and therefore to devote more resources to activities that are desirable for well-being even if they are not strictly necessary. Greater attention can be given to environmental, social and cultural activities than would otherwise be the case.
- There are circumstances in which economic growth as measured by changes in GDP per capita do not benefit local communities, or benefit them only slightly. There are also circumstances in which economic growth can cause significant environmental damage. Whether these negative effects occur depends on the context in which growth happens. We believe that local and central government agencies have an important role to play in shaping that context.

1.2. Legislative Context

Local governments in New Zealand are charged with promoting the social, economic, environmental, and cultural well-being of communities, in the present and for the future.² This mandate is closely linked with central government's concept of sustainable development..

The four well-beings featuring in the Local Government Act (2002) are strongly interdependent, in the sense that the overall well-being of the community would be reduced by single minded pursuit of any one of them to the exclusion of the others. The declining industrial cities of the United States demonstrate vividly the effect of exclusive focus on economic well-being. In contrast, Havana has superb social and cultural attributes but its built environment is decrepit and its population are economically poor. These examples support the proposition that a balanced pursuit of social, economic, environmental and cultural well-being is desirable.

This report focuses on the economic development of Auckland. This is legitimate because economic development has a meaning distinct from social, environmental and cultural development. All four well-beings are complementary, but they are advanced in different ways.

1.3. What is Economic Development?

The term “economic development” does not have a universal definition. Its meaning can therefore vary quite significantly between countries and just as significantly between organisations within countries. The following are a range of definitions that seek to define economic development.

“Economic development is fundamentally about enhancing the factors of productive capacity - land, labour, capital, and technology - of a national, state or local economy.”

“Typically economic development can be described in terms of objectives. These are most commonly described as the creation of jobs and wealth, and the improvement of quality of life. Economic development can also be described as a process that influences growth and restructuring of an economy to enhance the economic well being of a community.”

“The process of raising the level of prosperity and material living in a society through increasing the productivity and efficiency of its economy.”

“Economic Development is the process of creating wealth through the mobilization of human, financial, capital, physical and natural resources to generate marketable goods and services.”

The Ministry of Economic Development’s (New Zealand) definition is stated as a goal which is to “grow an inclusive, innovative economy for the benefit of all.” The Ministry is also concerned with sustainability and states that all “policies and programmes (should be) designed to meet the needs of present generations without compromising the ability of future generations to meet their own needs.”

All of these definitions refer directly or indirectly to the growth of an economy in terms of wealth and jobs. This is generally referred to as *economic growth* and is most commonly measured in terms of annual growth in real gross domestic product (GDP) and employment.

However, economic development is concerned with more than just wealth and employment - it is also concerned with the *ownership* and *distribution* of wealth and with employment across individuals in the economy. Furthermore, GDP only includes market transactions that can be measured in accounting terms. It therefore provides a narrow measure of economic activity because it omits the value that is added to the economy by goods and services that are produced but either not traded (such as things we produce and do for our family members) or traded but not captured in official statistics (i.e. transactions in the underground economy).

However, when compared across jurisdictions and over time, real GDP growth is at least a reasonably reliable comparative indicator of economic activity. It is also highly correlated with, and closely related to economic development although causality could run in either direction (economic growth could lead to economic development or vice versa).

To overcome the definitional problems associated with economic development we use economic growth as a proxy for economic development in the remainder of this report.

1.3.1. The Link between Economic Growth and Wellbeing

To understand how increases in real GDP may translate into economic benefits for communities, it is helpful to descend to the level of individual transactions and observe how these create benefits. Economic wellbeing is ultimately derived from the consumption of goods and services. Real GDP measures the total amount of goods and services that are produced and consumed within our economy, so higher real GDP should correspond to higher welfare, broadly speaking.⁵

There is a body of empirical evidence that suggests that economic growth contributes to well-being in the broadest sense of the term. This work arises from the field of behavioural economics, which is closely associated with psychology.

Government agencies in some countries have for many years conducted social and economic studies which survey the “happiness” of respondents. By analysing the relationships between these self-reports of happiness and a range of contextual factors, it is possible to assess how economic growth (among other things) affects this broad definition of well-being. In general, such work does find that higher GDP makes people happier, as do other plausible factors such as exercise, club membership and gardening.⁶

One problem that arises in such analysis is the direction of causality. Are people with higher per-capita GDP happier as a result, or is it that happier people produce better GDP data, perhaps because they are more productive? The available evidence⁷ favours the former - that increases in both the level and growth rate of GDP per capita lead to increases in self-reported happiness.

1.3.2. Gains from Trade

The idea that GDP growth is desirable derives fundamentally from the concept of gains from trade. The phrase ‘gains from trade’ refers to the gain in welfare (or well-being) obtained by the parties to an exchange of goods and services. If two people willingly agree to a transaction, it is reasonable to assume that each benefits from doing so. That is, the value to the buyer of the good or service is at least as great as the price paid, and the cost to the seller of producing it is no higher than the price received. The total welfare, or gains from trade, created by trade is the difference between the buyer’s value of the good or service and the seller’s cost to supply it.⁸

The net benefit each trader obtains will depend on a range of contextual factors that affect the balance of bargaining power between them. However when viewed from the perspective of society as a whole, this balance is not particularly important provided both parties are members of the same society. The greater is the value of such trade, the greater are the benefits accruing to society.⁹

1.3.3. The Growth Process

Growth can occur in a number of ways, but in the long-term market forces will ensure that there is a balance or 'equilibrium' between supply and demand. In a city like Auckland growth can be led initially by demand or supply, or by both at the same time.

Consider the process of demand-led growth which would be driven by an increase in the demand for goods and services produced and/or sold in Auckland. A possible reason for this might be a large increase in net migration. In the short-term this would impose some upward (inflationary) pressure on prices, and this would create an incentive for existing businesses to increase output levels (which would generate additional profit) and new businesses to enter the market. Output would rise to meet the higher demand levels and competitive pressures would force prices back down, possibly to the same level they were at prior to the increase in demand.

1.3.4. Displaced Resources

Innovation that causes economic growth also generally displaces resources from their present uses. This can be painful and costly for the owners of those resources, particularly in the case of workers whose jobs disappear.¹¹ For some such people, retraining and subsequent employment in a new activity is feasible, and in these cases the costs are in the nature of temporary adjustment costs. Many developed societies have legislative mechanisms that assist people in such circumstances.

From the perspective of the economy as a whole, it is however an unambiguous benefit when similar levels of output value can be obtained using fewer resources. Anything that cuts the cost of production without reducing its value produces economic benefits. If necessary, additional policies can be enacted to redistribute the economic gains, so as to offset any distributional effects.

1.4. Benefits of Economic Growth

The benefits of economic growth are readily summarised - an increase in the economic value a population generates can increase the range of options available to that population. This wider set of choices can include further expenditure on goods and services, and/or the commitment of resources to advance environmental, social or cultural well-being. Since these non-economic well-beings are generally costly to promote, economic growth can help to facilitate them.

There is not necessarily a connection between economic growth and an increase in the range of options available to a population. Nor is there any necessary connection between larger sets of options and the promotion of non-economic well-beings. Indeed, there are feasible contexts in which economic growth might provide very modest benefits, economic or otherwise, to a community. Economic growth based on the exploitation of the resources of colonies is an obvious example - activity in the colony expands but the benefits accrue primarily to the colonists.

Such extreme situations are useful in reminding us that ownership of the value added through economic activity is critical to the economic well-being of a population. The institutional structure of an economy is therefore fundamentally important to economic

well-being. And since governments (national and local) can influence these institutions, this is a channel through which governments can affect economic well-being, and in particular can help populations to benefit directly from economic growth.

1.5. Costs of Economic Growth

There may be welfare costs associated with economic growth, although this will ultimately depend on the source of the growth. For example, a high pollution industry may create a lot of GDP but the external pollution and health effects may make people worse off in terms of overall well-being. The key is whether or not the economic price signals that are sent to firms investing in capacity are 'correct' in the sense that they convey all information about the welfare effects of growth. There are two ways in which accurate economic signals may not exist: externalities and public goods. These are discussed in more detail below.

1.5.1. Accurately Signalled Costs

The production and trading of goods and services requires a wide variety of resources. For the purchase of many of these inputs, producers are obliged to interact with other suppliers through markets. This is how labour and capital inputs are generally acquired, along with many other materials and services that are required as intermediate inputs into production.

These production costs are recovered through the sales of final products. Provided the input and output markets are reasonably competitive, *and completely reflect the costs of the resources supplied*, the outcome will be socially optimal. Production will only increase if consumers are willing to pay the full cost of the additional output. Under these conditions economic growth does have a cost, but growth will only occur if the resulting social value is greater than or equal to those costs.

1.5.2. Externalities

Not all resources in an economy are priced, and some are not priced appropriately. In such cases costs or benefits "spill-over" from commercial transactions to other parties. Because these costs or benefits do not affect the parties to the transaction, they are called "externalities". Examples include traffic congestion and noise pollution which reduce quality of life for those affected. If externalities are present economic growth may not increase people's welfare or well-being once external effects are considered.

Economists generally advocate correcting such problems by "internalising" these effects, for example through a system of taxes or subsidies. Such schemes have the potential to force those whose behaviour produces the effect to recognise and take responsibility for the costs they impose on others. In other words, they shift the transaction to the previous category of "accurately signalled costs".

Externalities are highly relevant to local authorities that are thinking about economic development. For example, consider the redevelopment of a low-rise office block into a high-rise apartment block which will lead to a large number of additional residents on that plot of land. If the development requires the sewer main in the region be enlarged, or it brings forward the date at which it needs to be enlarged, then it is important to ensure this does not impose a negative externality (cost) on parties not associated with the development. A negative externality can only be avoided by charging the development the full incremental cost that it imposes on the sewer system.

In the absence of such a policy the incentives for redevelopment will be too strong. Developers will perceive total costs that are lower than economic reality, and existing ratepayers will end-up subsidising commercial developments. Failure to ensure that developers pay the full cost of their activities would lead to excessive urban sprawl. Greenfield developments have high network connection and environmental costs that, if fully internalised, might make brownfield developments relatively more attractive.

1.5.3. Public Goods

There is one other situation in which commercial trade is unlikely to result in the best pattern of development and growth. This concerns goods and services that are impossible or very difficult to provide commercially. These are commonly referred to as public goods.¹⁴ In general a charging mechanism is commercially infeasible or inefficient for public goods, so private firms tend to supply an amount that is less than socially optimal.

A city park is a reasonable example of a public good. Most city parks are free for all: no attempt is made to exclude people who don't pay. This need not be the case, but it is an arrangement that people have come to expect and to which some people attach considerable value.¹⁵ If a city park was sold to private owners, one would expect the area allocated to free public access to shrink dramatically, if not disappear altogether.

Demand for park use is closely related to population growth but is not directly increased by economic growth. The same is true for most other locally provided public goods, such as free fireworks displays. In these cases the value provided to society by the public good increases as population grows, but the costs do not. So there is a population related economy of scale which, other things equal, should lead local governments to provide more of these types of public goods.

Even facilities for which fees are charged can still have public good characteristics. Museums, libraries and swimming pools are good examples. These are often sited on land that is so valuable that a private owner would prefer to redevelop the property than to retain it in existing usage. Provided the population as a whole attaches sufficient value to public facilities of this type, it is reasonable for local governments to provide them. We note in passing that the revenue collected will generally be an underestimate of the value people place on the facility.¹⁶

1.5.4. Environmental Damage

Environmental damage is perhaps the most serious cost of economic growth. If economic activity had not expanded dramatically in the past, we would live in an environment that was very different and clearly superior in some respects. Biological diversity for example, has definitely declined as a result of economic activity. The same is true of the extent of forest coverage and the quality of many water systems. The impact of greenhouse gas emissions on the world's climate is also evidence that economic growth has environmental costs.

There are also environmental benefits from growth. For example, the environment is far less hazardous to public health in places that have more reliable supplies of potable water and communal sewerage systems, both of which need to be paid for through economic activity. There is also a more general sense in which greater economic well-being allows people the freedom to take a greater interest in environmental issues. For example, it is difficult to imagine that active environmental groups would have attracted more than a small number of people a hundred years ago.

2. Growth in Theory and Practice

2.1. Chapter Summary

- Economic growth theory attempts to explain why economies grow over time and what determines the rate at which growth occurs.
- Economic growth can be achieved in two basic ways:
 - By using larger volumes of inputs, such as capital and labour; and/or
 - By increasing the productivity of inputs.
- Resources are typically defined as labour, physical capital (plant, machinery, and so on), land, and other natural resources such as oil and minerals. Growth in the stock of physical capital is thought to be the one most amenable to policy interventions.
- Growth likely occurs through a mix of neo-classical (savings-driven) and endogenous (technology-driven) channels. From a policy point of view, this means that policies that encourage (or at least do not discourage) savings, and create an environment in which technological innovation can occur are most likely to promote economic growth.
- Two general forms of investment can promote growth:
 - Investment in people, through education and training; and
 - Investment in things such as machinery and software.
- Growth is also promoted by:
 - Stable government, including stable monetary policy;
 - A robust and efficient financial system; and
 - Good quality physical and social infrastructure (roads, hospitals, etc).
- At a city level, economic development depends heavily on the ability of firms to locate suitable labour and vice-versa.
- Cities experience rapid economic growth when they host industries and sectors that are growing rapidly, and do so in ways that other locations cannot.
- There are many possible sources of this competitive advantage, including:
 - Proximity to physical and human resources required by high growth sectors (e.g. harbours connected by land transport infrastructure to productive hinterlands, high quality educational facilities);
 - The presence of one or more outstandingly successful and innovative firms (e.g. Seattle, which is home to Microsoft and Boeing); and
 - Network effects arising from large pools of innovative smaller firms and individuals (e.g. the IT outsourcing sector in Bangalore).
- Governments (including local governments) have a legitimate and useful role in promoting growth, even to the extent of targeting particular industries for direct assistance. The nature of the assistance matters a great deal.
 - Such activity is likely to be beneficial if it provides information or other services that are likely to bring forth new investment and would not be provided by the private sector.
 - It is likely to be harmful if it involves direct and non-contested assistance to particular firms, or involves some form of protection from competition.

- Policies that encourage (or at least do not discourage) savings, and create an environment in which technological innovation can occur are most likely to promote economic growth.
- It has been convincingly shown that productivity is higher in larger cities, that co-location in cities directly fosters innovation, and that larger cities contribute more than proportionately to national output.
- There are fundamental economic benefits that arise from the diversity that can be supported in a city.

2.2. Theoretical and Empirical Literature

2.2.1. Growth Theory

Economic growth theory attempts to explain why economies grow over time and what determines the rate at which growth occurs. This is motivated by the observations that different countries have grown at different average rates in the past, and consequently some countries are much richer than others.

In general, the amount of output (commonly measured as GDP) that an economy can produce in a given amount of time is constrained by the resources that it has and the efficiency of the production technologies available for turning these resources into goods and services that people want to consume. This suggests that growth can be achieved in two basic ways:

- By increasing the quantity of resources that the economy has; and/or
- By improving production technology to make the use of existing resources more efficient.

As a result, the theory of economic growth is actively being developed by economists in at least two main directions, corresponding to each of these two channels for growth.

Regarding the first channel, resources are typically defined as labour, physical capital (plant, machinery, and so on), land, and other natural resources such as oil and minerals. If the quantity of any of these resources increases, the economy will grow. Thus, for example, population growth is one reason why economies grow over time, as the quantity of labour increases.

Of all the types of resources, growth in the stock of physical capital is thought to be the one most amenable to policy interventions. This is because investment in physical capital is constrained by the rate of savings in the economy in the long-run. This is the basis of what is known as 'neo-classical' growth theory, which attempts to explain differences in growth rates as being largely due to differences in savings rates.

A very simple equality linking the savings rate (s), the capital output ratio (K/Y) and the growth rate of the labour force (gL) emerged from Neo-classical growth theory:

$$(1) \quad s = \frac{K}{Y} gL$$

This equality was regarded as the basic condition under which an economy would grow at a constant rate. Total savings (sY) were available for reinvestment in the capital stock K , and adding either capital or labour led to increased output – i.e. to growth. This last fact (adding inputs increases output) is true very generally, though it will often also be true that the output boost per additional input unit will be smaller and smaller as more inputs are added (an effect known as diminishing returns). There are consequently limits on the extent to which the mere addition of inputs is desirable.

The early neo-classical growth theorists¹⁷ realised that none of the three terms in equation (1) were in fact constant. The savings rate (s) depends on how patient people are (the so-called rate of time preference) and the interest rate – these can and do change over time. Similarly, the growth rate of labour (gL) depends on labour supply preferences, fertility levels and immigration rates among other things. Finally, the capital intensity of production will change over time with the industrial structure of the economy and with technological innovation.

Analytical attention was focussed initially on enriching the way technology was represented in the model; this led to explicit modelling of the capital intensity term (K/L) which allowed researchers to demonstrate that the economy could achieve long-run growth under a reasonably wide range of input assumptions. This technical innovation led in turn to an interesting practical result. It was demonstrated that the long-run rate of output growth per unit of labour input depended only on the rate of technological progress and in particular was independent of the savings rate.

This focus on technological progress is also at the heart of the second main branch of growth models, based on what is known as ‘endogenous growth’ theory. This line of work began in the 1980s and has attracted an enormous research effort. Endogenous growth models take a broad view of technological progress, recognising for example that additional training is an investment in ‘human capital’ (or the skill level of workers) that is analogous to more traditional investments in fixed assets.¹⁸ By concentrating on the process of technological innovation, endogenous growth models are able to study the way that policy makers can influence economic growth. Technological innovation is assumed to raise the productivity of all resources, which can generate growth even if the quantities of resources remain constant.

The main aim of this branch of the literature is to explain how economies can continue to grow over time, without relying on external (non-economic) factors such as population growth or discovery of new natural resources, and avoid the growth-slowing effects of diminishing returns. Such models include the process of technological innovation within the model itself and explain how this occurs as a natural result of the operation of the economy. These models also help to identify the factors that influence the rate of technological progress and thus the rate of growth. A very large range of theoretical endogenous growth models have been developed, studying the role of

education, how income distribution affects growth, the impact of different market structures, and the effect of policies designed to stimulate research and development.

One class of endogenous growth model is based on the ideas of Joseph Schumpeter¹⁹ who argued that even apparently entrenched monopolies carry the seeds of their own demise, and will eventually be displaced through a process of “creative destruction”. This group of models yields some testable propositions,²⁰ including that the long run rate of growth will:

- increase with
 - research and development productivity
 - the flow of patents
 - the rate of new firm creation
 - the rate of exit of firms
 - the rate of obsolescence of capital; and
- decrease with
 - the interest rate,
 - the rate of quitting by workers, and
 - the cost of hiring new workers;

Most of these propositions are intuitively plausible. The fact that firm exit and capital obsolescence are predicted to increase the growth rate stems from the idea that these changes are caused by innovation, which is inherently productive. So the fact that institutions such as firms are changing and capital is being written off more quickly merely indicates that there is more innovation and hence more growth.

In reality, growth likely occurs through a mix of neo-classical (savings-driven) and endogenous (technology-driven) channels. From a policy point of view, this means that policies that encourage (or at least do not discourage) savings, and create an environment in which technological innovation can occur are most likely to promote economic growth.

2.3. Empirical Evidence

There is surprisingly little convincing empirical evidence on the determinants of growth. The main reason is that accurate and consistent measures of the variables of interest are in short supply. Secondly, the impact of un-modelled but important economic shocks (e.g. to oil prices) and general trends such as increasing globalisation of business activity and the formation of trading blocks, tend to obscure the effects under study.

Nevertheless some things can be said. First, it seems that stable prices (i.e. low inflation rates) are a necessary, though not sufficient condition for growth. Secondly, a robust and efficient financial sector is extremely important, since it is this sector that

determines which of the myriad competing business plans will obtain debt and equity finance.

It is commonly believed that infrastructure investment is an enabler of growth in the sense that it allows the development of a range of private commercial activities that would otherwise not be feasible. This proposition has found solid support in empirical studies such as that of Easterly and Rebelo (1994).²¹ Also worthy of note is a recent regional analysis of public investment in Spain,²² which confirmed the role of infrastructure as a promoter of growth but also identified some interesting inter-regional spill-over effects. The growth impact of regional investment in transport infrastructure was shown to affect neighbouring regions, because it facilitated transport in and out of those regions. Local work on the subject²³ has recognised that infrastructure cannot create growth in a vacuum, and is supportive of the view that infrastructure investment is a necessary condition for growth, but is not sufficient by itself.

Education seems to play a complex role in growth. There is some evidence of diminishing marginal returns to education, so that the lower stages of education provide the greatest gains. However, in aggregate, education also seems to be capable of accelerating growth, with the average level of educational attainment being positively correlated with the growth rate of output.²⁴

The connection between income inequality and economic growth has received considerable attention in the modern literature. However the nature of the relationship is far from settled. No sooner had a 1996 survey²⁵ of the field found a consistent message that initial inequality is detrimental to long-run growth, than new work using a richer set of 'panel data' found the opposite.²⁶ One theoretical reason supporting the idea that inequality promotes growth is that it leads to a situation where more than half of the population (the poorer half) are in favour of higher taxation to finance public education, which will increase human capital and therefore increase growth. On the other hand, inequality itself could have adverse welfare (well-being) effects that are greater than the well-being gains from any growth created by inequality.

2.3.1. City Level Analysis

The literature discussed above is mainly concerned with growth at the level of a national economy. There is also a body of work that considers cities more specifically, both in theory and through empirical analysis. An accessible survey of much of this material is provided by Quigley (1998)²⁷ who discusses four economic factors that cities provide. These are summarised in Table 1.

Table 1 Economic Factors Provided by Cities

Factor	Example
Scale Economies	
in production (within firms)	larger plant sizes
in consumption	parks, libraries, etc
Shared Inputs	
in production	accounting & legal services
in consumption	theatres, restaurants
Transactions Costs	
in production	labour market matching
in consumption	shopping malls
Statistical Economies	
in production	lower unemployment
in consumption	lower inventory levels

Source: adapted from Quigley (1998)

If there are production side economies of scale, the unit cost of production can be reduced when larger markets are being supplied. So, when transport costs are significant, it is cheaper to supply the larger markets found in cities than to service smaller communities. On the consumption side, there is greater value from a park the more people are located in proximity to it, though there can also be an offsetting congestion effect.

Shared inputs in production refers to the idea that some services are most efficiently contracted in. Firms do not need to retain full time employees for all functions and a city can support firms that specialise in providing contract labour. On the consumption side, theatres and restaurants are more viable when they can draw from a larger pool of potential customers.

The cost of arranging many transactions is lower within cities than between cities or within smaller groupings. Firms are more easily able to locate suitable labour in cities, so firms that require frequent access to deep labour markets are more likely to locate in cities. And their presence makes cities attractive for workers as well. On the consumption side, cities are able to support a wider range of retail outlets, and clustering in shopping districts and malls reduces search costs for consumers.

Finally, cities can deliver some benefits simply through the operation of laws of large numbers unless fluctuations are highly correlated across decision makers. For example, if good and bad trading periods occur for firms at different times, workers may be able to shift between firms in a way that reduces unemployment overall. And if variations in product demand by different purchasers is similarly uncorrelated, the overall pattern of demand will be smoother, allowing firms to hold lower levels of inventory.

These fundamental economic benefits arise from the diversity that can be supported in a city. As Quigley says:

“...Diversity and variety in consumer goods or in producer inputs can yield external scale economies, even though all individual competitors and firms earn normal profits.”

There is a large body of empirical literature that supports this idea. It has been convincingly shown that productivity is higher in larger cities, that co-location in cities directly fosters innovation, and that larger cities contribute more than proportionately to national output. Another quote from Quigley summarises:

“...no matter how the results are described, it remains clear that the increased size of cities and their diversity are strongly associated with increased output, productivity, and growth. Large cities foster specialization in production and sustain a broader range of final products, increasing the returns of their firms and the well-being of their residents.”

It is of course true that ongoing expansion of cities can lead to some undesirable features, and that there are consequently limits to how much one might want a city to grow. However since the empirical evidence surveyed by Quigley was based on analysis of large cities outside New Zealand, it would seem difficult to argue that Auckland is anywhere close to those limits.

2.4. The Role of Government

Our analysis so far suggests that governments can have an important and diverse role in promoting economic growth in ways that advance the well-being of their communities. Some aspects of this role are most obviously the domain of central government. However it seems important that local governments are aware of the way different activities of government support economic activity and growth. Moreover, for some aspects of the role, collaboration between local and central government is required. We will therefore attempt a complete, though brief, description of the role of government.

In compiling this list we have used as a guiding principle the idea that goods and services which can be efficiently provided through private markets should be so provided. This means that our “job description” for government is limited to functions where there are likely to be market failures as a result of externalities or public good attributes.

2.4.1. Property Rights and Justice

Property rights are the most basic building block of economic activity, since trade involves the transfer of property rights. Respect for property rights is maintained through a justice system. This enforcement role need not necessarily be provided by government of course, but doing so increases the chance of the system remaining free of corruption, which is a highly desirable attribute.

2.4.2. Macroeconomic Management

As noted above, the evidence suggests that a stable macroeconomic environment is highly conducive to economic growth. New Zealand has a system of institutions that promote stability and economic prudence in government. The independence of the Reserve Bank is a key component of this system, as are the fiscal reporting constraints on governments. Macroeconomic management also includes a system of redistributing income (i.e. a tax system), which has ambiguous and contentious impacts on economic growth.

2.4.3. Social Infrastructure

There are strong rationales for government involvement in education, at least to a basic level. Education generates significant positive externalities and has public good aspects that make complete privatisation undesirable. Moreover, as the international economy moves more towards information-based outputs, the definition of a basic level of education is likely to increase. As noted above, education tends to promote economic growth.

The linkages between our education and training systems and the current and future needs of employers also need consideration. This is an area in which private markets are unlikely to deliver good outcomes due to severe informational constraints. Students have limited information about future demand, and there are often significant timing lags between commencement and completion of training. It would be difficult to overstate the importance of this set of issues. It is an area in which well designed public policy could lead to significant benefits, both in terms of economic growth and towards more general community development objectives.

The second main type of social infrastructure where governments traditionally play an extensive role is public health, which is clearly an important determinant of productivity. There is considerable debate over the extent to which private provision of health services is desirable. However, canvassing this debate would be a large digression, so we merely observe that basic health services have clear public good attributes and are growth promoting.

2.4.4. Physical Infrastructure

Physical infrastructure is potentially an extremely broad term. For present purposes, we take it to include the following:

- Land transport networks of all types including roads, bus-lanes, rail track, and their ancillary works (bridges, tunnels etc);
- Sea and air ports, ferry terminals etc; and
- Energy and some communications networks.

In the parlance of US jurisprudence, these are all facilities that are affected with the public interest,²⁸ and therefore traditionally regarded as candidates for some form of official oversight, whether through direct ownership or through some regulation mechanism.

2.4.5. Environmental Regulation

In the absence of any constraint, high quality environments are likely to be excessively degraded. The natural environment, including air and water resources, typically has no clearly defined ownership. Government intervenes to protect the environment using a variety of policies and rules; local government's role is defined substantially under the Resource Management Act.

2.4.6. Industry Assistance

There is a wide spectrum of opinion over the extent to which governments should be involved in directing the development of industry. In some very successful economies, the government is actively involved as a commercial investor. Singapore is an example of this approach. Elsewhere, and Ireland is an example, governments provide significant incentives in an effort to persuade certain businesses to relocate in their country. The extent to which governments should be willing to "pick winners" will continue to be an active policy question, for local as well as central government.

Any strategy that discriminates between sectors is a form of "winner picking", though there are clearly a range of intensities with which such discrimination can be employed. Targeted research support, such as practised by the Foundation for Research Science and Technology (FoRST), is a common example of the way governments discriminate between sectors, though it may be of a smaller order magnitude than other methods, such as generous and ongoing tax breaks.

Discrimination of this form could promote or retard growth, depending on whether the sector being favoured was well chosen or not, and depending also on whether the level and structure of the assistance was well designed. There is a sound economic case for assisting industries where market failures are preventing growth. For example, trade missions and international promotions of Auckland as a destination for business are unlikely to arise from the private sector alone, and may well promote economic growth. This may also be the case for activities targeted at specific sectors rather than at business in general.

While carefully designed "Auckland as a destination" marketing initiatives are likely to be very worthwhile, there are other options that would automatically raise concerns. Direct grants to specific companies in the absence of competitive bidding would be an example. Similarly, policies designed to shelter "infant industries" from competition are unlikely to be worthwhile uses of public funds; there are private incubators and venture capital firms that can fill this role.

3. The Context for Growth

3.1. Chapter Summary

- Economic development has historically been stimulated by technological innovation and there is no reason to expect this to change.
- Many people believe that we are entering a new economic age, known as the information economy or the knowledge economy, which will transform the world as significantly as the industrial revolution did.
- The global economy is advancing in the direction of knowledge-intensive production, where the creation of new knowledge is highly valued. This trend is recognised by central government in New Zealand, which has embarked on a range of programmes designed to promote innovation and, through innovation, economic growth.
- Total population growth over the period 2001-2026 is expected to be 46% for the region and 44% for the city. There are two important trends within the aggregate data. The first is that the age structure of Auckland city is expected to change quite significantly over the forecast period. The second is that the vast majority of the population growth is expected to be Asian (121% over the period 2001-2016) followed by Polynesian (23%), Maori (16%) and European (1%).
- Auckland City is quite strongly specialised in the provision of professional services.
- Auckland has grown at a similar rate to the rest of New Zealand over the past two decades. However, Auckland's growth rate has fallen below the growth rate for the rest of New Zealand in the past two years which is of some concern.
- In aggregate the Auckland economy has grown by around 64% in real terms (2.8% per annum) since 1987. This places Auckland seventh out of fourteen regions in terms of growth.
- Auckland has experienced low per capita economic growth relative to the rest of New Zealand. Aggregate growth in the Auckland economy has therefore been driven by population growth rather than productivity growth.
- We investigated the simple relationships between growth in Auckland and growth in the rest of New Zealand. These models suggested that growth in the rest of New Zealand tends to lead growth in Auckland, but that the reverse is not true. This modelling is consistent with the hypothesis that Auckland adds value to outputs from other parts of New Zealand.
- Our research suggests that differentiation in the structure of economic activity across the cities in this region is both natural and desirable. If each city was economically similar many of the scale related benefits of diversity would be lost.
- Economic growth will be best advanced by immigrants with the potential to contribute to a high value knowledge based economy, either as entrepreneurs or workers.
- Since a talented population is so vital to future growth prospects, expected age and ethnicity trends have serious implications for education and training policies.

- Some concerns have been expressed about the scarcity of business land in Auckland. We do not view this as a significant problem as long as Auckland City retains and exercises flexibility in considering rezoning applications.
- The ability of the city and the region to maintain a road construction programme will be a key determinant in Auckland's desirability as a place to reside and/or do business.
- Auckland City might usefully consider a role in energy security, either in promoting demand management or encouraging innovative locally distributed supply options, or both.

3.2. National Context

Economic development has historically been stimulated by technological innovation and there is no reason to expect this to change.²⁹ A local example is New Zealand's emergence as an agricultural trading nation, which was stimulated mainly by the development of refrigerated shipping. While this dependence on innovation is obvious, it is not helpful to policy makers until we recognise two further things. First, innovations arise from and are stimulated by particular contexts. Second technological innovation is not sufficient; it generally requires new business models to be commercialised, at which point it can start affecting the wider economy. The actions and policies of governments, central and local, help to define the context within which innovation will occur.

Many people now believe that we are entering a new economic age, known as the information economy or the knowledge economy, which will transform the world as significantly as the industrial revolution did. The technological innovations that are creating this shift are all related in some way to electronic communications, a sector which has been growing rapidly for the last two decades and where the pace of innovation appears to be increasing. More fundamentally, these advances are spilling over into other sectors, where they have the effect of increasing the potential rates of innovation. For example, an OECD report on the impact of the knowledge economy for the education sector is introduced this way:

Today's "knowledge economies" are seeing the emergence of new paradigms for innovation and the advancement of knowledge in relation to economic activities.³⁰

Within this global context, New Zealand has begun to seriously examine the way we foster innovation and growth. The Growth and Innovation Framework was launched by central government in February 2002.³¹ In this and subsequent documents, the government has recognised its central role in providing good fiscal and monetary policy, an open and competitive business environment, social cohesion, public health and education and a solid research and development framework.

However, the government also believes that this is not sufficient, and is promoting work along four further themes:

- strengthening the innovation system;
- developing skills and talents;
- increasing international connections; and
- engaging with sectors.

Throughout this work, central government's overall theme of sustainable development is apparent. Sustainable development is defined as being that which meets the needs of the present generation without compromising the ability of future generations to meet their needs. Importantly for this work, the government recognises the multidimensional nature of sustainable development but focuses particular attention on economic growth. Its reasoning is as follows:³²

The government agrees that well-being is more than just incomes. Our sustainable development indicators are more broadly based to capture environmental, social and cultural aspects of well-being – the "quality of life".

There is no measure of overall well-being. However, GDP per head is generally accepted as an indicator of material living standards that can be compared among different countries, and a reasonable proxy for well-being.

The global economy is therefore advancing in the direction of knowledge-intensive production, where the creation of new knowledge will be highly valued. This trend is recognised by central government in New Zealand, which has embarked on a range of programmes designed to promote innovation and, through innovation, economic growth.

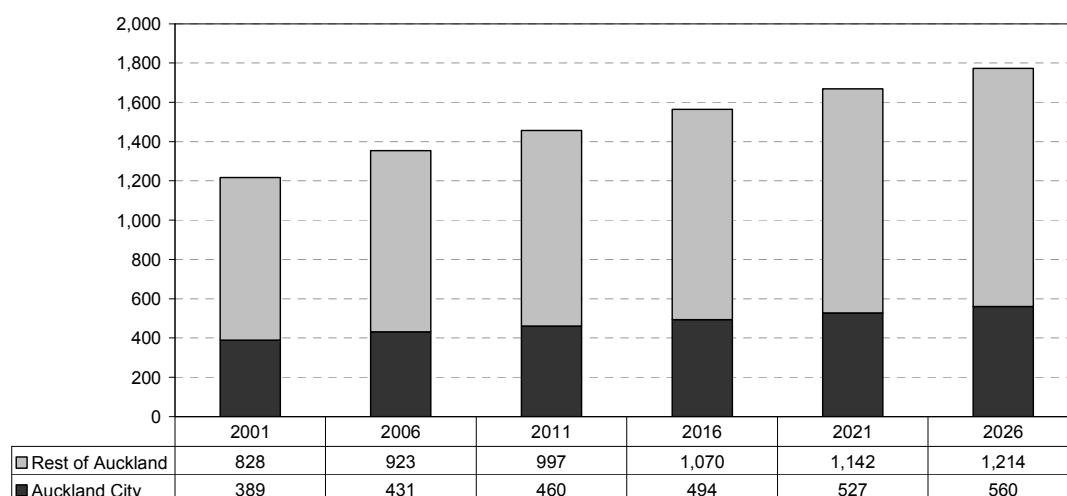
3.3. Auckland City Context

The starting point for analysing growth in Auckland City is understanding the key features of the City as it stands today, as it has evolved in recent times, and as it might be expected to evolve in the future.

3.3.1. Population and Population Structure

As a region and a city, Auckland has grown significantly in recent years. This is projected to continue, although Statistics New Zealand places wide confidence bands on its forecasts of sub-national populations, so they should be viewed as estimates only. Figure 1 shows the mid-range forecast for Auckland region and for the city out to 2026. On the basis of these data, the population of Auckland City is expected to remain at about 32% of the regional population. Total population growth over the period 2001-2026 is expected to be 46% for the region and 44% for the city.

Figure 1 Population Projections for Auckland ('000s)



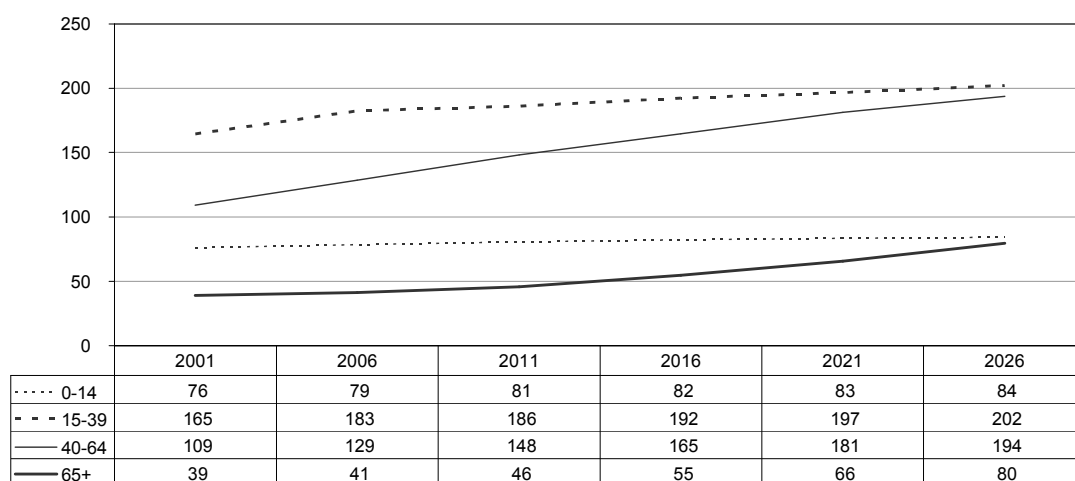
Source: Statistics New Zealand

There are two important trends within the aggregate data. The first is that the age structure of Auckland city is expected to change quite significantly over the forecast period (Figure 2). The expected growth rates of each age cohort in Auckland city are as follows:

- 11% for those aged 0-14 years
- 23% for those aged 15-39 years
- 78% for those aged 40-64 years; and
- 104% for those aged 65+

The net result is an increase in the median age of an Auckland city resident from 33 years in 2001 to 39 years in 2026. This is a larger increase in median age than any other local authority in the region, apart from Franklin District.

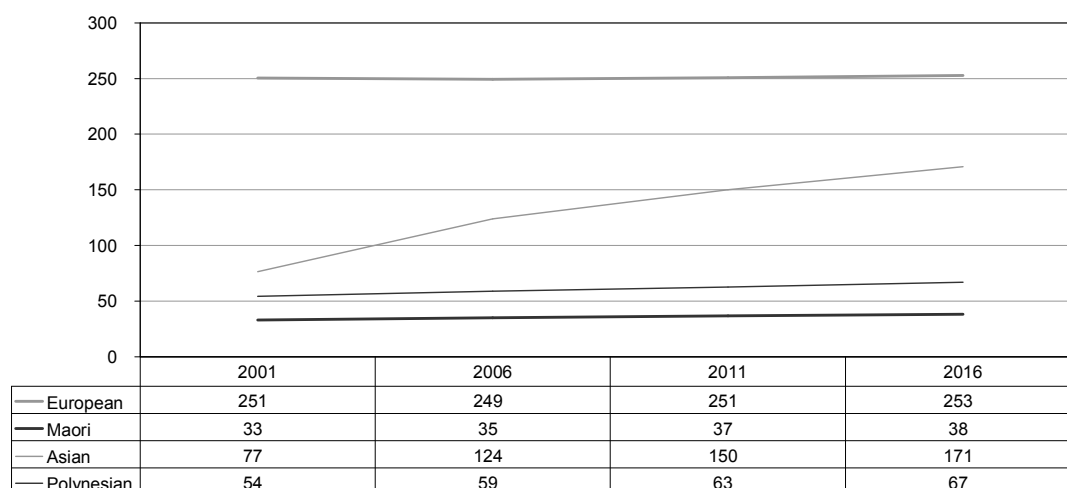
Figure 2 Expected Age Structure of Auckland City ('000s)



Source: Statistics New Zealand

The second major trend relates to ethnicity. The vast majority of the population growth is expected to be Asian (121% over the period 2001-2016) followed by Polynesian (23%), Maori (16%) and European (1%). Extremely similar Asian and European growth rates are predicted for the Auckland region, while regional projections for Polynesian (44%) and Maori (26%) exceed Auckland city figures. Figure 3 illustrates the expected changes over the forecast period.

Figure 3 Expected Ethnic Composition of Auckland City ('000s)



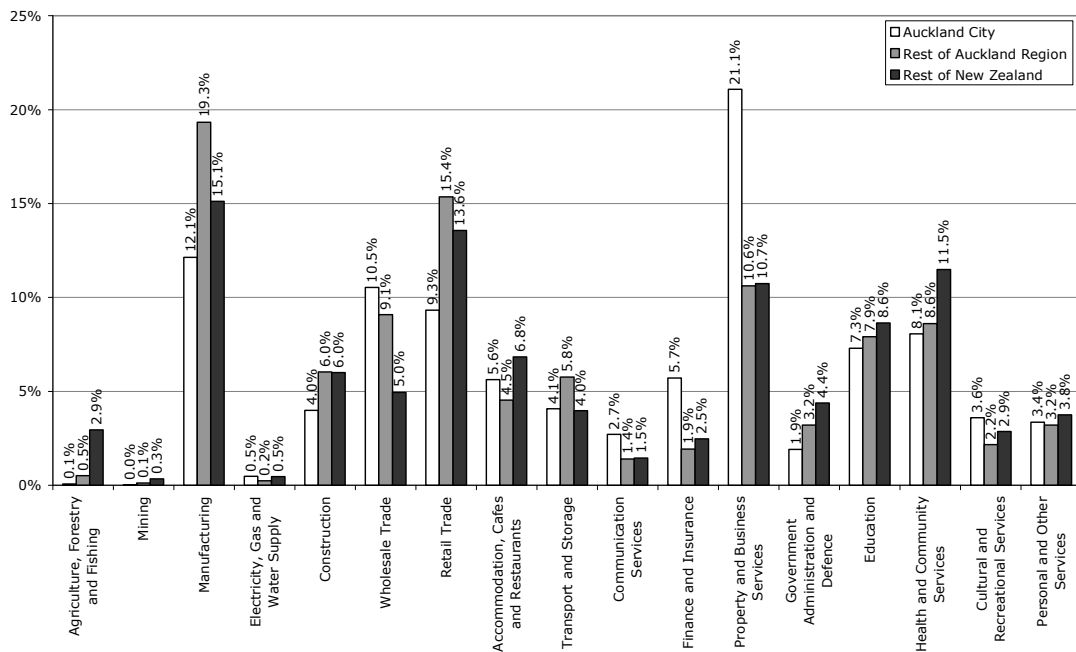
Source: Statistics New Zealand

On the basis of these data it seems likely that the population of Auckland city will continue to grow; that it will age quite significantly; and that it will become considerably more ethnically diverse.

3.3.2. Structure of the Auckland Economy

The structure of the Auckland economy has been assessed using Statistics New Zealand employment data. It is clear in Figure 4 that the Auckland region is relatively more specialised than the rest of the country in manufacturing, wholesale trade, transport and storage, finance and insurance, and property and business services. It is also clear that within the region Auckland city has a much lower proportion of its workforce engaged in manufacturing than the remainder of the region. Auckland City is quite strongly specialised in property and business services, and in finance and insurance, with other less significant areas of specialisation being wholesale trade, accommodation cafes and restaurants, communication services and cultural and recreational services. This indicates that Auckland city is quite service oriented when compared with the rest of the Auckland region and the rest of the country.

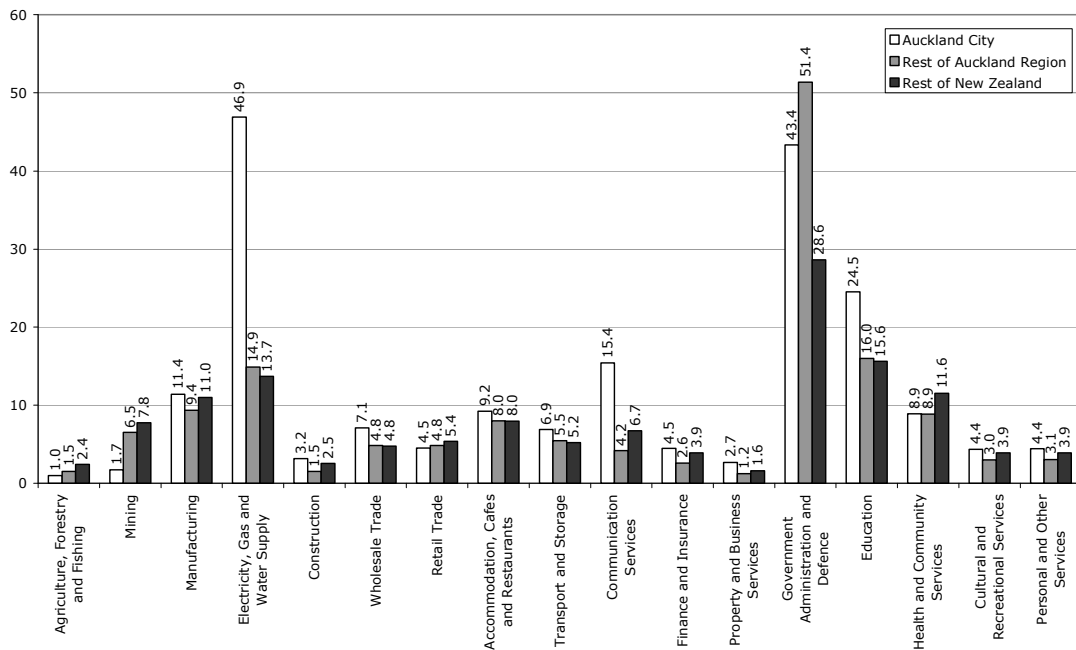
Figure 4 Distribution of Employees across Industry Groups



The employment data can also be used to derive information about business scale in terms of employees per business unit. This data is shown in Figure 5. Nationally, the largest employers are in the government sector (administration, education and health) and the utility sector (electricity, gas and water). With the exception of health and community services, this pattern is magnified in the Auckland region.

It is interesting to note that although Auckland City has a smaller share of its workforce engaged in manufacturing than the rest of the region, on average it hosts slightly larger manufacturing employers than the rest of the region. Auckland city’s dominance in the service sectors is reinforced by the utilities (electricity, gas and water), communication services, and education sectors all employing more staff per business unit relative to the rest of the Auckland region.

Figure 5 Average Employees per Business across Industry Groups

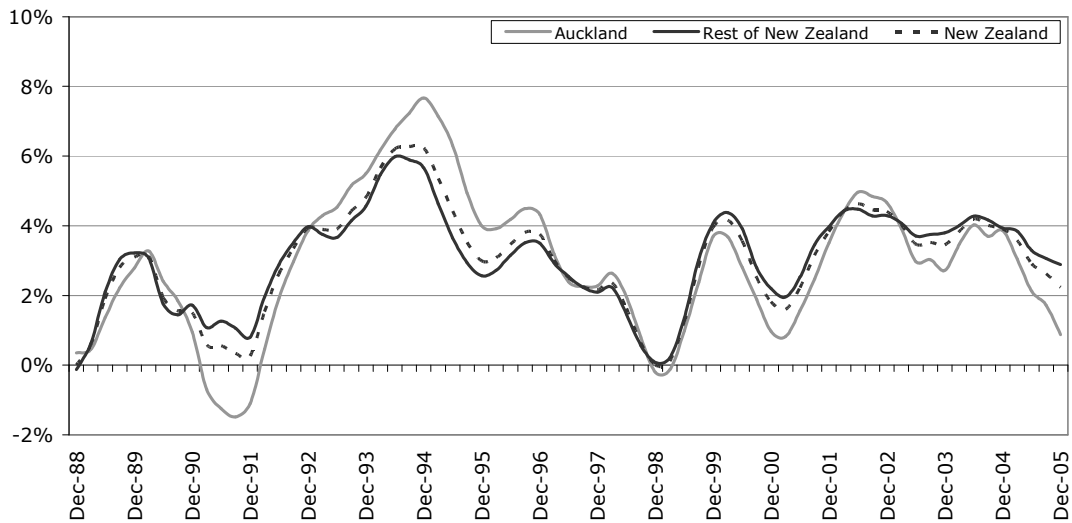


3.3.3. Economic Activity and Growth

The relationship between the Auckland region economy and that of the rest of the country is not particularly well understood. This is unlikely to change until better data are available to allow researchers to track transactions sub-nationally. However, there are some regional data available and we have used these to investigate the way that economic activity in the Auckland region is related to activity in the rest of New Zealand.

Figure 6 contrasts growth in the Auckland region with growth in the rest of the country. The data are annual average growth rates. The data indicates that Auckland’s economy is more volatile than the rest of New Zealand - it has higher peaks and deeper troughs. Total economic activity for New Zealand must by definition lie between activity for Auckland and for the rest of New Zealand. Auckland’s volatility therefore contributes to the volatility of the national economy.

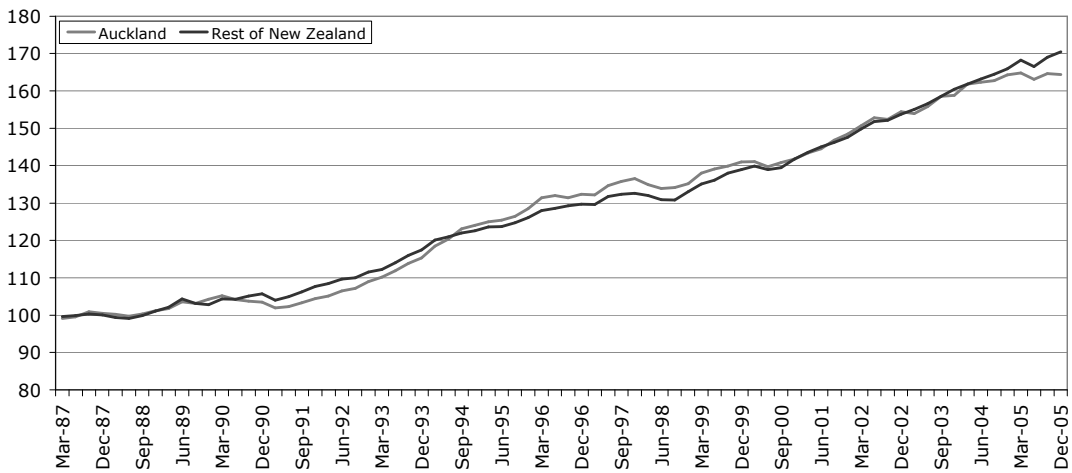
Figure 6 GDP Growth for Auckland and the Rest of New Zealand



Source: National Bank and Covec

Figure 7 indicates that Auckland has grown at a similar rate to the rest of New Zealand over the past two decades. However, Auckland's growth rate has fallen below the growth rate for the rest of New Zealand in the past two years which is of some concern.

Figure 7 Index of GDP Growth in Auckland and the Rest of New Zealand (Index = 100 in 1987)



Source: National Bank and Covec

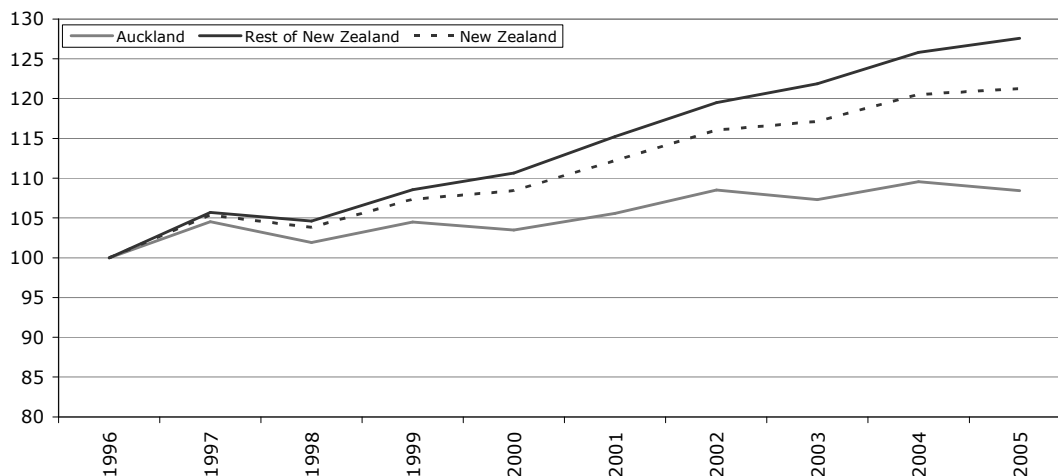
In aggregate the Auckland economy has grown by around 64% in real terms (2.8% per annum) since 1987. This places Auckland seventh out of fourteen regions in terms of growth.

Table 2 Regional Growth in Economic Activity 1987-2005

Region	Growth in Economic Activity 1987-05	Annual Growth in Economic Activity 1987-05
Waikato	86.0%	3.5%
Canterbury	83.7%	3.4%
Nelson-Marlborough	80.5%	3.3%
Northland	79.7%	3.3%
Bay of Plenty	75.6%	3.2%
West Coast	65.7%	2.8%
Auckland	64.4%	2.8%
Hawke's Bay	63.0%	2.8%
Taranaki	62.0%	2.7%
Wellington	60.3%	2.7%
Otago	60.3%	2.7%
Southland	57.2%	2.5%
Manawatu-Wanganui	51.3%	2.3%
Gisborne	42.4%	2.0%
New Zealand	68.5%	2.9%

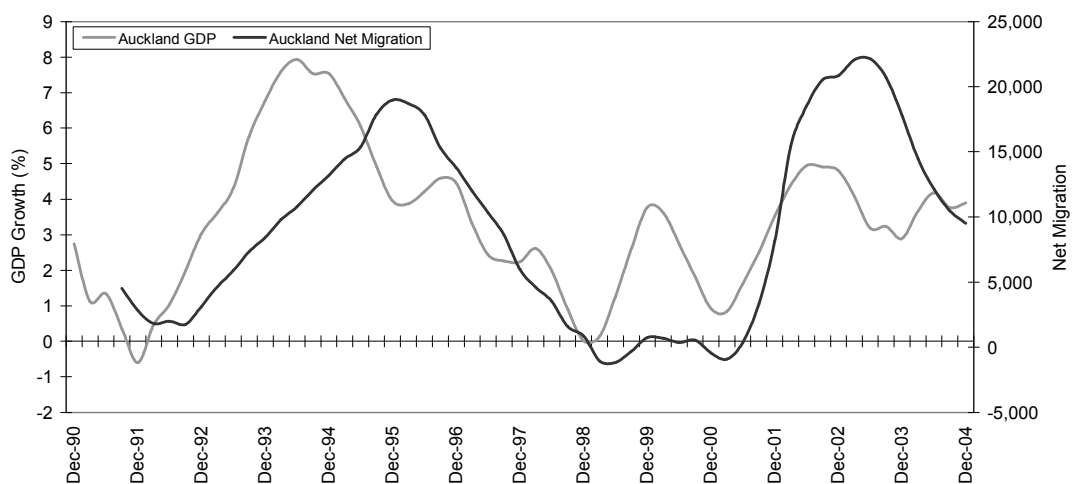
However, Auckland has experienced low per capita growth relative to the rest of New Zealand. Aggregate growth in the Auckland economy has therefore been driven by population growth rather than productivity growth.

Figure 8 Index of Growth per Capita (Index = 100 in 1996)



We conducted a preliminary econometric investigation into the way Auckland growth is affected by the rest of New Zealand's economic growth, and by migration in Auckland and the rest of New Zealand. Figure 9 shows that there is a high degree of correlation between net migration³⁴ and economic growth in the Auckland region. A similar pattern exists for the rest of New Zealand. Our regression analysis³⁵ suggests that economic growth in a region attracts migrants to that region, but we found no evidence that the reverse was true. On average over the sample period, we found that each additional one percent of annual economic growth in Auckland attracted an additional 182 migrants to Auckland (or deterred 182 from leaving). For the rest of New Zealand, the effect was stronger, with an average increase of 550 migrants.

Figure 9 GDP and Net Migration for Auckland Region



We also modelled economic growth in two ways. First we investigated the simple relationships between growth in Auckland and growth in the rest of New Zealand. These models suggest that growth in the rest of New Zealand tends to lead growth in Auckland, but that the reverse is not true. Secondly, we repeated this analysis but made allowance for net migration in Auckland and elsewhere in New Zealand. The same general result was found, though the magnitude of the effect was different. This modelling is consistent with the hypothesis that Auckland adds value to outputs from other parts of New Zealand.

It is beyond the scope of this project to conduct a detailed investigation of the relevant economic linkages between Auckland and the rest of New Zealand. However we believe that work of this type would be extremely for developing a view about the contribution of Auckland to the New Zealand economy.

3.4. Situation Analysis

Auckland city has several very desirable attributes. The following are particularly noteworthy.

- It is at the physical core of the largest metropolitan region in a stable, developed democracy which itself has good linkages into the rapidly advancing Pacific Rim economies.
- It is physically beautiful and has a very pleasant climate.
- It has good economic linkages back into the domestic economy.
- It has a full range of social institutions including excellent education and health care facilities.
- Auckland is on the international flight path for travellers between Australia and the USA.

Set against these benefits are some disadvantages that need to be overcome in order for the city to prosper.

- Our harbours contribute to the physical beauty of the city, but also concentrate our transport corridors by limiting the route options for getting into, out of, or through the city.
- We are remote from adequate resources of water and energy and therefore need to rely on infrastructure networks to bring such resources to the city.
- We are also remote from the major population centres of New Zealand's trading partners and potential trading partners.

Over the next decade, Auckland has the potential to build on its already strong economic performance and become a truly international city. To achieve this, we need to continue leveraging our existing advantages while converting some of our weaknesses into strengths.

- Our small market is well educated and makes us an ideal test-bed for innovation in products and services.
- Relatively remote but stable and attractive locations are likely to become more popular as unrest and danger grows for city dwellers in other locations.

There are also substantial risks facing Auckland, beyond those arising from the normal swings in economic fortunes and attitudes. The 1998 power outage shows that we are not immune to catastrophic failures of key infrastructure. A second event of that nature may be far more serious than the first in terms of our reputation as a desirable place to live, work and do business.

We now comment on a set of specific issues facing Auckland City.

3.4.1. City and Region Interaction

We have already discussed the contribution that Auckland makes to the national economy. It is likely that Auckland city plays a similar role within the greater Auckland region, supplying commercial services that assist the formation and growth of businesses in the region. Moreover, our research suggests that differentiation in the structure of economic activity across the cities in this region is both natural and desirable. If each city was economically similar many of the scale related benefits of diversity would be lost.

The dispersed governance structure of the Auckland region is sometimes cited as a barrier to growth or to growth promoting initiatives. It is beyond the scope of this report to consider this matter in depth, but it is apparent that cooperation and coordination between cities in the Auckland region is highly desirable and should be pursued with vigour. The relationships between these cities should be complementary rather than competitive.

3.4.2. Immigration

Continued population growth is expected in the city, from international and inter-regional migration. This will generate two main flow-on effects. The first is an increasing population density as more people reside within the city boundaries. This will place stress on infrastructure, but it will also stimulate a range of business activity. Economic growth will be best advanced by immigrants with the potential to contribute to a high value knowledge based economy, either as entrepreneurs or workers.

The second effect of greater population will be pressure to convert land to residential rather than commercial or industrial uses. This bears on the separate issue of the availability of business land which is discussed below.

3.4.3. Demographics

As noted previously the population of the Auckland region is growing, ageing and becoming more ethnically diverse. Since a talented population is so vital to future growth prospects, these trends have serious implications for education and training policies. We are aware that within the region there exist significant mismatches of skills and disengagement of large numbers of young people from training or employment. This cannot continue if the region is to prosper and grow. While there are some localised initiatives underway to address these issues,³⁶ these issues seem important for the region as a whole and hence should be of interest and concern to Auckland City.

3.4.4. Land Use

Some concerns have been expressed about the scarcity of business land in Auckland, particularly since greenfield development sites have been largely exhausted and pressure from residential uses increases. While such concerns are understandable, we do not view this as a significant problem, although it does require Auckland City to retain and exercise flexibility in considering rezoning applications. It is natural for the industrial and commercial character of the city to change as the region grows. What

matters is that Auckland City's zoning rules are able to adapt to accommodate future and use patterns.

The increasing value of land in the city is already forcing people to think more carefully about how they use it. This should stimulate innovation, for example in designing more efficient storage systems that allow items to be stored vertically, thereby to better utilise small floor plates. It is also likely to result in land-intensive businesses relocating to cheaper areas. Given the increasing value of land in Auckland city, we think that this is a desirable outcome.

3.4.5. Transport

It is widely acknowledged that Auckland has serious transport problems. While some construction is now underway, political pressure at the central government level appears to have forced some redistribution of anticipated road funding away from Auckland. The ability of the city and the region to maintain a road construction programme will be a key determinant in Auckland's desirability as a place to reside and/or do business.

A better arterial road network through Auckland will create economic benefits well beyond the city and the region. It will materially improve access to and from Northland, the Waikato and beyond, and in doing so can be expected to stimulate economic growth in these regions. While roads are an important element in the transport system, they are not the only element. Other key areas for transport development are rail corridors, the northern bus way and the ferry network.

3.4.6. Power Supply

Based on current demand projections there is strong evidence that significant additions will be required to electricity infrastructure in Auckland within the next five years. Based on construction lead times of two to three years the time frame for making decisions about the shape of this investment is extremely short. The consequences of a supply failure are very severe, both through short-run losses in production and over the longer term through damage to the city's reputation as a reliable location for business. Auckland City might usefully consider a role in energy security, either in promoting demand management or encouraging innovative locally distributed supply options, or both.

4. Future Scenarios

4.1. Chapter Summary

- Metro Magazine argues that the region is at a tipping point, and that commitment to major expenditures on electricity, transport, education and the waterfront are required to put the region into a new period of growth. We generally agree with these regional needs.
- We have considered three more future scenarios, each of which could be part of a ‘virtuous cycle’. The future may well involve components of each.
 - Technology and innovation: The co-location of many firms of varying sizes, all working on the commercialisation of new products and services, and the expansion of markets for these new outputs will characterise Auckland in this scenario.
 - Professional services: Auckland breaks the geographic link between the provision and consumption of professional services with service entrepreneurs in Auckland reorienting some of their effort towards export activity. Key enablers of this trend are high-quality and reasonably priced broadband access, an efficient airline service, and the location in Auckland of first rate service professionals.
 - Creative: The development of a strong creative culture in Auckland has attracted a wide range of creative people to the city and stimulated growth in a number of industries including advertising, architecture, crafts, design, designer fashion, film and video, interactive leisure software, music, the performing arts, publishing, software and computer games, television and radio.
- The key feature of all three scenarios is that knowledge economy entrepreneurs and workers find Auckland an attractive place to locate because doing so gives them ready access to the most critical resource of the future economy: talented and innovative people.
- The larger the pool of such people in Auckland, the more attractive it will be for entrepreneurs and workers to locate and grow here.
- The challenge for Auckland is to attract innovative businesses. We need to recognise that location is of secondary importance for such firms. There are many other places that have the educated workforce and other resources required by innovative business. What will make them choose Auckland?
 - Auckland is a highly attractive modern city.
 - Our local government understands innovative business and is responsive to its needs.
 - There is already an innovative business community in Auckland that we are retaining. We are good at “growing our own” firms and as we get better at doing so, there will be a larger flow of such firms.

4.2. Context

A recent article in Metro Magazine suggests that there are two possible scenarios for the Auckland region: the Doom Loop and the Virtuous Circle. In each, particular events change the perceptions of people and result in additional events that reinforce the impact of the previous ones. The resulting spiral either leads upwards, towards greater prosperity and a better living environment, or downwards towards shrinking incomes, fewer public services and a reduced quality of life. Metro argues that the region is at a tipping point, and that commitment to major expenditures on electricity, transport, education and the waterfront are required to put the region into a new period of growth.

We generally agree with these regional needs. And the close interdependence between the city and region of Auckland means that Auckland City needs to remain well connected with regional initiatives. For the city itself, we have considered three more future scenarios, each of which could be part of a virtuous cycle. While these scenarios are described as if they were alternatives, the future may well involve components of each.

4.3. Possible Scenarios

The three scenarios we consider are:

- Technology and innovation;
- Professional services; and
- Creative.

4.3.1. Technology and Innovation

As noted above, central government has been advancing policy in line with a Growth and Innovation Framework (GIF). This looks to several key industries such as biotechnology and ICT as potential agents of economic growth. One future scenario for Auckland is that the city develops along approximately similar lines, with an emphasis on the development and marketing of knowledge-intensive products and services.

The co-location of many firms of varying sizes, all working on the commercialisation of new products and services, and the expansion of markets for these new outputs will characterise Auckland in this scenario. Some of these firms will be recent start-ups, including firms graduating from business incubators such as the Icehouse³⁷ and the AUT Technology Park.³⁸ Others will develop from existing successful firms such as Navman. Additionally, Auckland may attract development capital from international investors. We should expect to observe many different types of relationship between these firms, as small companies feed products, services and ideas into larger firms which have the scale and contacts to access global markets.

All firms in the sector will benefit from being located in one city through having ready access to shared productive inputs, such as technological and business advice, for which none is large enough to require dedicated resources. Clustering together in semi-formal associations will allow the sector to create more products and services of greater value.

There will be strong complementarities between the start-up sector and established firms. All will be investing heavily in research and development. Existing and larger firms will be able to reduce risk by leveraging off existing revenue streams to avoid the early years of negative cash-flows faced by start-ups. They will also benefit from being in the same city as start-ups and will help stimulate demand for the network of support services on which the innovation sector draws.

The education sector in Auckland will be an integral part of this activity. At the upper levels, university-based researchers will be creating new knowledge and remaining abreast of international developments. Some of them will also be transitioning out of the education sector and into spin-off firms. Tertiary students will be exposed to this new research and will develop into graduates capable of making increasingly important direct contributions to innovative firms. The secondary school system will not just be providing a solid educational grounding to its students, but will also be fostering an awareness of the opportunities available in the new economy.

4.3.2. Professional Services

The Auckland region has a higher than average percentage of its employees engaged in the provision of professional services. Many of these employees live and/or work in Auckland city. Firms with sufficiently large head-offices provide some of these services internally, and contract the balance from specialist external providers. Smaller firms contract externally for many more services. The demand for professional services will therefore depend partly on the volume of general business activity in the markets that Auckland's professional service providers serve.

Auckland is a net provider of professional services to the rest of New Zealand and therefore adds value not only to the Auckland economy but also to the wider New Zealand economy through the provision of these services.

In the professional services scenario, Auckland breaks the geographic link between the provision and consumption of professional services. Aware of the trend towards the relocation of head-office activity in Australia, Singapore and the USA, service entrepreneurs in Auckland re-orient some of their effort towards export activity, and win the business of significant clients in other countries. Key enablers of this trend are high-quality and reasonably priced broadband access, an efficient airline service, and the location in Auckland of first rate service professionals.

Auckland is viewed by service professionals as a highly desirable place to live, and the existence of a pool of talent allows locally-based firms the freedom to expand internationally. Our exchange rate assists competitiveness by allowing Auckland based professionals to compete aggressively against rivals located closer to major corporate

head offices. For example, in the UK consulting economists charge in sterling what New Zealand economists charge in New Zealand dollars. A UK based-firm could therefore hire a New Zealand-based economist for less than half the price of a UK-based economist. We also use our time-zone to best advantage, effectively extending the length of the business day for our clients.

4.3.3. Creative

The development of a strong creative culture in Auckland has attracted a wide range of creative people to the city and stimulated growth in a number of industries including advertising, architecture, crafts, design, designer fashion, film and video, interactive leisure software, music, the performing arts, publishing, software and computer games, television and radio.

In the creative scenario, music, film and theatre professionals cluster around several key locations within the city and have created a bustling entertainment sector. Restaurants, bars and entertainment venues support and complement this activity and benefit from it. There is ongoing innovation along the spectrum between entertainment venues and restaurants, and some of the more successful concepts are exported internationally.

The city has also become known for its museums, art galleries, and interactive tourist attractions that showcase and communicate Auckland's culture and creativity. Cultural experts are readily available to visitors, for interpretation of exhibits that have a distinctively Auckland flavour, often arising from our unique history and ethnic mix. Painters, sculptors, photographers and a range of other artists find Auckland a congenial place to live and work. Many of the open spaces in the city contain examples of their work.

Some members of the artistic community work for small and innovative companies developing electronic media for education, research and leisure markets around the world. In these roles they interact with technical specialists from computer science backgrounds and with marketing and business development professionals. This mixing of artistic, technical and commercial skills leads to innovation that would not otherwise have occurred.

4.4. Possible Pathways

The key feature of all these scenarios is that knowledge economy entrepreneurs and workers find Auckland an attractive place to locate because doing so gives them ready access to the most critical resource of the future economy: talented and innovative people. The larger the pool of such people in Auckland, the more attractive it will be for entrepreneurs and workers to locate and grow here.

The reverse is also true of course: the greater the demand in Auckland for people with the skills required in the future economy, the more attractive Auckland will be as a location for such people. These complementary incentives create what economists call network effects which can be extremely powerful and self-reinforcing forces of attraction. Network effects occur where some kind of “matching” is valued, whether for trade or simply for conversation as occurs in telephone networks. Many people sell goods on trademe.co.nz *because* many people buy goods there. The matching between buyer and seller is far easier and more mutually satisfactory the more people are involved, so there is a strong tendency for one matching service to dominate all others.

Adding to the capacity of the city’s physical infrastructure is an obvious and necessary element in the overall growth strategy. It hardly needs to be said that further investment in roads and in public transport infrastructure is necessary to maintain a reasonable quality of life for Auckland residents. Moreover, it should be apparent that a high quality built environment is itself necessary for the development of the high quality labour markets on which these optimistic future growth scenarios depend. Urban design and the enhancement of the city’s open spaces are therefore likely to remain important.

However, while physical infrastructure investment is necessary for growth, it may not be sufficient to deliver any of the scenarios outlined above. Analysis of business models in which network effects are prevalent suggests that, at least in the initial stages of establishment, a deliberately designed pricing strategy is required to initiate growth. Typically, one of the two groups being matched gets an offer that appears much more generous than that offered to the other group. For example, users of credit cards often receive bonuses in the form of frequent flyer miles etc when they use their cards, whereas merchants pay the credit card company a fee. A similar structure is used for online trading markets. This transfer of value between groups is efficient because both groups benefit from the matching service being provided but they differ in their ability and willingness to pay.

Since private firms operate this way, should the city consider doing so? We consider that it may be sensible for the city to facilitate mechanisms of this sort, but caution that there are severe hazards associated with committing public funds to transfer schemes. It is one thing to harness the network effects that allow a new matching service to thrive. It is quite another to do the same for a city, which is a far more complex entity. Well intentioned but ill conceived subsidy programs could be extremely costly in the short-run, and diminish the political and social will for investment in subsequent programs, however well designed. In our view, it is prudent to insure against such downsides by involving council as a facilitator of investment rather than being an investor itself.

4.5. Auckland City Vision and Aspirations

Innovative business is the key to our economic future. We believe that Auckland city can:

- Legitimately aspire to be the innovative business capital of New Zealand; and
- Become widely regarded as a centre for innovative business in the Pacific region.

This vision recognises Auckland's position and potential within New Zealand and the position and potential of New Zealand in the global economy.

It is clear that we need more high value exports. Some of these may be branded food products based on the traditional agricultural strength of New Zealand but with development and marketing inputs more characteristic of the modern economy. Others may be advanced electronic technologies, developed in Auckland but manufactured elsewhere. Developing and exploiting intellectual property is a key characteristic of innovative business.

In developing exporting strategies, Auckland city can use its relationship with the New Zealand economy as a test bed for the relationship between New Zealand and the world. There are already innovative businesses in Auckland that are doing just this. For example, Vodafone sees the New Zealand market in precisely this way.

The challenge for Auckland is to attract innovative businesses. We need to recognise that location is of secondary importance for such firms. There are many other places that have the educated workforce and other resources required by innovative business. What will make them choose Auckland?

There are at least three answers to this. First, Auckland is a highly attractive modern city. Our physical advantages are being reinforced by careful attention to open spaces, the built environment and basic infrastructure. Second, our local government understands innovative business and is responsive to its needs. Zoning policies are flexible enough to accommodate the requirements of innovative business people. Third, there is already an innovative business community in Auckland that we are retaining. We are good at "growing our own" firms and as we get better at doing so, there will be a larger flow of such firms.

5. Considerations for Council

5.1. Chapter Summary

- Governments should only intervene directly when private agents trading through markets are unlikely to produce socially desired outcomes *and* there is a specific intervention that is likely to improve matters. This is a strong hurdle for direct intervention.
- There is a recognised and positive relationship between infrastructure and growth, and a realisation that Auckland's current infrastructure, particularly for transport, is a constraint to growth.
- The waterfront area, which is currently dominated by Ports of Auckland, has the potential to be much better connected with the city. It is important that decisions over the port are based on the best possible analysis of all alternative uses of the land.
- The Regional Business Land Strategy led by Auckland Regional Council addresses the perceived problem of running out of business land. We do not share these concerns. The land market is a remarkably efficient way of signalling land scarcity.
- In many respects the economic development of Auckland City is complementary to the development of its neighbouring cities and districts. While there will always be some margins of competition between the local governments in the region, this should not obscure the co-dependence that all councils have on the development of the region.
- There are two potentially complementary strands to direct government involvement in the promotion of economic development:: promoting Auckland as an attractive place to live and to work; and direct support of individual industries or sectors. In our view it is much easier to make a case for the former.
- There are a number of areas in which additional research could improve the understanding of current economic development issues in Auckland:
 - Analysis of the labour market in Auckland and its expected evolution.
 - Understanding developments in productivity.
 - Analysis of the extent to which Auckland does and does not compete with major Australian cities.

5.2. Rationale for Intervention

We have outlined a number of roles for government in previous sections. Central government is primarily responsible for the stability of the national economy while most sub national functions are handled by local and regional councils. As a general matter, we only favour governments intervening directly when private agents trading through markets are unlikely to produce socially desired outcomes *and* there is a specific intervention that is likely to improve matters.

This is a strong hurdle for direct intervention and should induce a disciplined analytical approach in which the costs and benefits of specific interventions are weighed against carefully considered counterfactuals. The same style of analysis that is used by the Commerce Commission in its consideration of regulatory interventions is appropriate in our view.

5.3. Targets and Actions

The policy issues below are critical to economic development in Auckland city.

- Investment in infrastructure;
- The port;
- Business land strategy;
- Auckland city as an entity;
- Promoting Auckland versus promoting industries; and
- Research into key drivers of growth.

5.3.1. Investment in Infrastructure

Although the empirical evidence is ambiguous about which “comes first”, there is a recognised and positive relationship between infrastructure and growth, and a realisation that Auckland’s current infrastructure, particularly for transport, is a constraint to growth. In addition, there are significant needs for investment in storm and wastewater infrastructure to maintain community well-being.

Infrastructure has high costs and there are limited mechanisms available to local government to raise revenue for infrastructure investment. We suggest three responses.

- **Analysis of local funding options.** Consideration of a range of financing options including debt, public-private partnerships and novel charging tools, and their impacts on company competitiveness and capital availability, will be important in ensuring that new investments in infrastructure are achieved in the most efficient way.
- **Achieving a greater allocation of central funds.** In the competition for allocation of funds from central government there is a need to better articulate the contribution that Auckland makes to the New Zealand economy. Fact-based research into the role of Auckland in the New Zealand economy may help to counter the anti-Auckland view that is evident in some quarters. This research

would also be useful in supporting arguments with central government over budget allocations for roads and other centrally funded items. Two research questions suggest themselves.

1. Considering inter-regional flows of goods and services within New Zealand, in what way and to what extent does Auckland add value to the national economy?
 2. Based on the income and expenditures in central government accounts, is Auckland a net contributor?
- **A clear articulation of infrastructure priorities.** There will always be limits to capital availability for infrastructure investment. It is vital that capital is allocated efficiently. Currently, the decisions are made in a highly politicised environment and involve different institutions and allocation mechanisms. Some of this may be changing through the establishment of new regional bodies—ARH and ARTA, but there is an obvious need for a systematic and consistent analysis of projects using social cost-benefit analysis and taking into account the distribution of costs and benefits over time by using a clearly agreed discount rate.

5.3.2. The Port

The waterfront area, which is currently dominated by Ports of Auckland, has the potential to be much better connected with the city. It is important that decisions over the port are based on the best possible analysis of all alternative uses of the land. The timing of this analysis should be carefully considered in light of the current transition in sea freight towards much larger vessels which are ideally serviced by deep water ports.

We recommend that Auckland City monitors the commercial outlook for Port of Auckland very closely and engage with the port directly and with the main shareholder (Auckland Regional Holdings) over future development plans for this area.

5.3.3. Business Land Strategy

The Regional Business Land Strategy led by Auckland Regional Council addresses the perceived problem of running out of business land. We do not share these concerns. The land market is a remarkably efficient way of signalling land scarcity. It can function both to ensure that land-intensive industries move to areas with lower land costs and as a signal to planners when the relative quantities of land zoned for business and residential use is inappropriate.

Additional research could be conducted into the relationship between land prices and land use intensity for business and residential users. Such analysis would be a valuable input into modelling possible future zoning responses to scarcity. This research would be similar to the research undertaken in other markets and would include projections of supply, demand and price.

5.3.4. Auckland City vs. the Region

In many respects the economic development of Auckland City is complementary to the development of its neighbouring cities and districts. While there will always be some margins of competition between the local governments in the region, this should not obscure the co-dependence that all councils have on the development of the region. We recommend liaison and cooperation with other local governments in the Auckland region, at two levels.

- Supporting linkages at the staff level between economic development teams in each council. Regular interaction between these teams could have several benefits:
 - information sharing and coordination of activities to reinforce progress towards common goals;
 - avoidance of competition with one another over the attraction of activities that require subsidy; and
 - a greater ability to project a coherent vision to potential investors, to central government, and to the local offices of government departments that are being established in Auckland.

- Ongoing participation in and development of the Regional Growth Forum. This group needs to be aware of, and engaged with, the programme of work being pursued by the economic development teams. The Forum should focus on areas of common interest and strive for clear articulation of a common view.

5.3.5. Promoting Auckland or Promoting Industries

There are two potentially complementary strands to direct involvement in the promotion of economic development:

- promoting Auckland as an attractive place to live and to work; and
- direct support of individual industries or sectors.

In our view it is much easier to make a case for the former. We note that some efforts are already underway to promote Auckland as a location for business. More could be done along these lines, for example by ensuring that there is a single entity capable of directing potential investors in Auckland to relevant information. Just as Tourism Auckland looks after visitors to the City, some agency should be capable of looking after potential investors.

While we do not rule out the possibility that more direct support might be appropriate, the risks associated with such activity suggest that very high hurdles should be enforced for direct support of industries and sectors.

5.3.6. Research to Better Understand Auckland's Growth Prospects

There are a number of areas in which additional research could improve the understanding of current economic development issues in Auckland. These include:

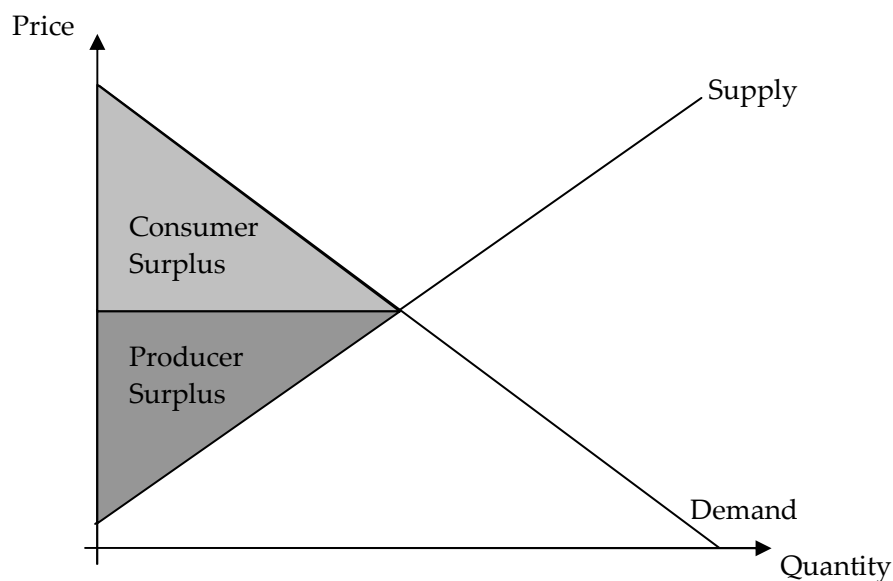
- Analysis of the labour market in Auckland and its expected evolution. We have highlighted in previous sections the critical role of labour market matching in economic development and the role of information in that process. It seems clear that there is a “training gap” in Manukau City, with relatively high levels of disengagement by 15-19 year olds and a dearth of skilled labour for employers. Does the same issue exist in Auckland City? If so, can something be learned from the work of the Central Online Management and Export Trade (COMET) project? More generally, to what extent are the skill-related aspects of national immigration policy aligned with the expected future needs of the Auckland economy?
- Understanding developments in productivity. There is a reasonable body of evidence to suggest that Auckland’s labour productivity is slipping behind that of other parts of the country and that growth is fuelled by population growth, rather than productivity improvements. However, these conclusions are based on little empirical analysis and scarce data. The econometric analysis undertaken in this report does not support the causal link between population and economic growth. Compilation of relevant data and a better understanding of total factor productivity would be very useful.
- Analysis of the extent to which Auckland does and does not compete with major Australian cities. Paul Krugman has argued³⁹ that international competition is a myth, that living standards are fundamentally related to domestic productivity growth and that analogies with industrial competition are wrong and unhelpful. Would the evidence support or reject Krugman’s hypothesis if it was tested between Auckland and Sydney?

Appendix

Figure 10 shows a typical model of a market for a good or service. The demand curve represents the willingness to pay of consumers for the good or service, and is downward sloping because consumers' willingness to pay for an additional unit declines as the quantity increases. The supply curve represents the willingness of firms to supply the good or service, and reflects their costs of supply. It slopes upwards because the cost of supplying an additional unit increases as the quantity increases.

The market equilibrium is found at the intersection of supply and demand. At this point, the price in the market is such that the amount that consumers are willing to consume at this price exactly equals the amount that firms are willing to supply. However, for many of the units of output that are sold, consumers would have been willing to pay more than the market price, and firms would have been willing to sell them for less than the market price. Thus both consumers and producers obtain economic surpluses, as indicated by the shaded triangles in . The total surplus, or welfare, created by this market is the sum of the two triangles.

Figure 10 Gains from trade in a market.



The situation is different when trade occurs between a person within our society and an external person. In this case, the benefit to our society as a whole depends on the balance of bargaining power. We might therefore care a great deal about institutional factors (laws, regulations, ownership patterns etc) that affect this balance of bargaining power. For example, we might care if international shipping lines operated a cartel that increased freight rates to monopoly levels, because that would affect the benefit that firms located in Auckland were able to secure from international trade.

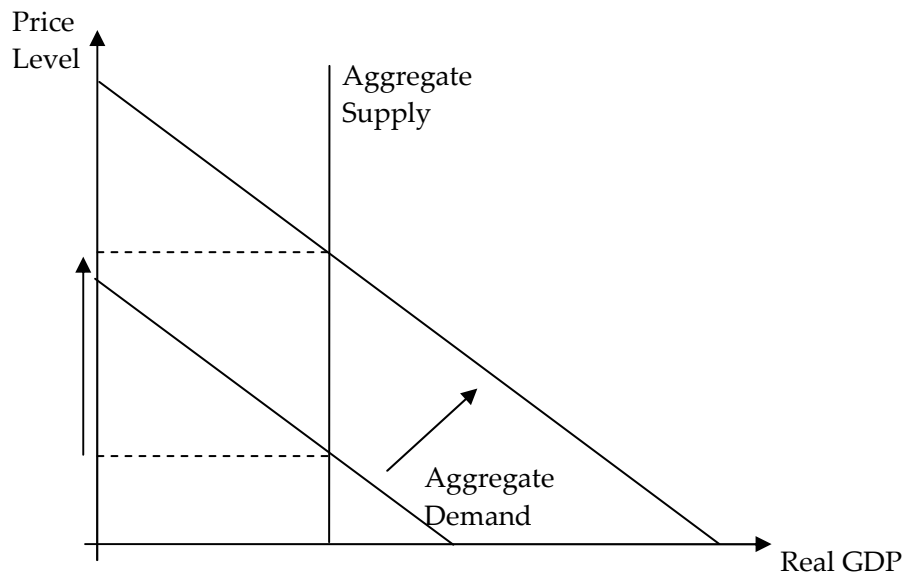
The above analysis is a snapshot of the situation that might apply in a single market at a particular point in time. Economic growth is broader in scope and in time. The quantum of economic activity needs to be viewed as an aggregate across all markets operating in a region. And we need to think about how the economy grows over time.⁴⁰

These concepts can be explained using a simple model of the 'aggregate' demand and supply in the economy. In this model it is assumed that the total quantity of goods and services that can be produced (the aggregate supply) is constrained by the resources that the economy has and the technology available at the present time. This is a reasonable short-run assumption because there are indeed capacity constraints in the economy: our ability to produce things is limited by the size of our factories, roads and labour force to name a few. This quantity is called the 'potential' level of real GDP. It is possible for actual real GDP to either be above or below potential GDP for a short period, but in general we would expect the operation of markets to return the actual GDP level to the potential level over time.

The aggregate demand curve measures the quantity of goods and services that are demanded for various purposes, including consumption, investment in capital goods, government spending, and demand for exports over imports.

Now, to analyse the growth process we need to consider what happens when these two curves shift around. Suppose initially that something happens to shift the demand curve to the right, such as an increase in the number of inbound tourists. The equilibrium in our economy still involves the same level of output (trade) because we are capacity constrained, but prices are higher as we compete for the available output. This situation is shown in .

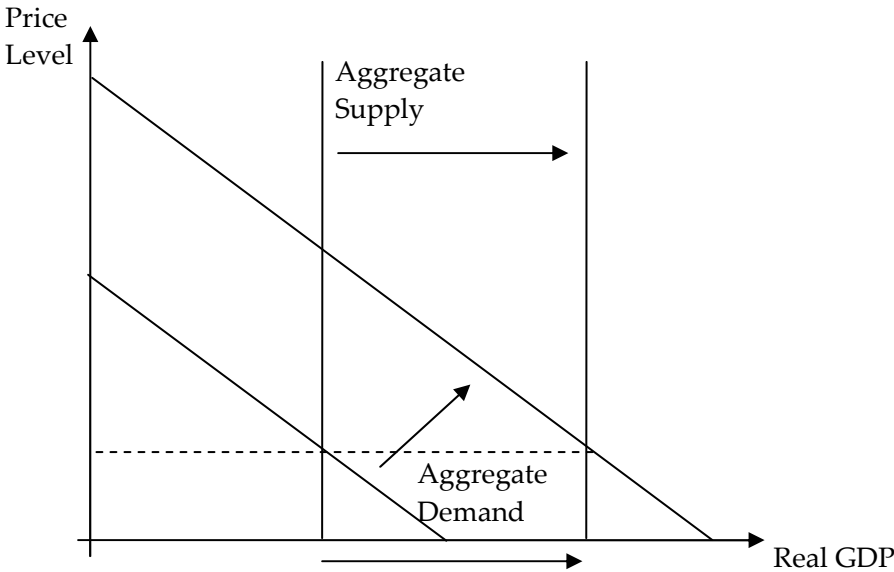
Figure 11 Effects of an increase in aggregate demand.



A pure price increase does not increase the productive capacity of the economy. It induces some new transfers between agents as the additional value generated by foreign buyers of our exports flows through the domestic economy. However it also creates price inflation which erodes the purchasing power of wages and works against increases in real GDP.

Over the longer run, economic development relies on investment in new productive capacity and technological progress. Investment that allows more production can be modelled as a shift of the supply curve to the right. If the demand curve also moves to the right, output prices can be maintained and the investment will turn out to have been justified. This is one form of economic development, and is depicted in .

Figure 12 Effects of an expansion in aggregate supply.



A similar effect could occur as a result of investment in productive capacity that embodies new innovations, even as the old technology is scrapped. For example, the move to digital pre-press processes in the printing industry resulted in a gross decline in old-technology capacity, and an increase in new-technology capacity. The net result may have been to leave the supply curve unchanged, but the lower variable costs of supply were the source of an economic gain.